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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,009	02/26/2004	Shuji Yamaguchi	500.40566CC3	3554

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EXAMINER
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WACHTEL, ALEXIS A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/786,009

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Alexis Wachtel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2-26-04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2-26-04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Detailed Action***

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the phrase "wherein the stirring blades provided in the inner reactor is without any counterpart rotating shaft along a rotation center" does not make sense. All stirring blades have a counterpart rotating shaft along a rotational center. Clarification is required. The above limitation is interpreted as reading on any stirring blade having a rotational shaft.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3322505 to Weber in view of US 1667838 to Buchanan.

With respect to claim 1, Weber discloses a stirring apparatus comprising: a vertical cylindrical vessel (10); a plurality of reactors (19), (11a) concentrically partitioned in the vertical cylindrical vessel, including an inner reactor (11a); stirring

blades (12-16, 32); an outlet (31) for volatile matters being provided at the upper part of the vessel, wherein the stirring blades provided in the inner reactor is without any counterpart rotating shaft along a rotation center.

The relied on prior art does not teach that the stirring blades have a common rotating shaft having fixed thereto stirring blades, at an upper space of the vessel, connected to a driving means mounted on an upper part of the vessel. Buchanan teaches a stirrer (7) that has several stirring blades attached to it and is operated by a driving means at the top of the vessel. For all intents and purposes, this stirring blade allows for a large volume of fluid to be stirred. In view of this teaching it would have been obvious to one of ordinary skill to have modified the apparatus of Weber to employ one single such stirrer to stir the contents of Weber's entire reactor vessel with the use of a driving means located at the top of the vessel. One of ordinary skill would have been motivated by the desire to simplify the mechanical operations of the apparatus.

The relied on prior art does not teach that heaters are provided for each of the reactors. However, Weber does not limit the application of the apparatus to exothermic processes (Col 1, lines 21-23; lines 52-56) which implies that the apparatus would find utility in endothermic reactions that require heat for the reaction to progress. To this end, having modified the apparatus to include heaters for the reaction zones within the apparatus would have involved routine engineering design choice.

With respect to 2, Weber discloses that the vessel has two reactors, an outer reactor (19) and the inner reactor (11a), partitioned by a partitioning cylinder (11), any process fluid that enters outer reactor (19) is stirred by stirring blades and is heated by

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heaters as established in the teachings relating to the use of heaters in claim 1.

Additionally, holes (36) define an upper edge of partition cylinder (11) and enable

With respect to 3, Weber in view of Buchanan as set forth above fails to teach that the vessel has three reactors, a first outer reactor, a second reactor and the inner reactor, partitioned by two partitioning cylinders, a process solution fed into the first outer reactor and stirred by stirring blades in the first outer reactor, the stirred process solution enters next the second reactor through a clearance between a lower edge of a first partitioning cylinder, of the two partitioning cylinders, the process solution fed into the second reactor is also heated by a heater and stirred by stirring blades in the second reactor, the stirred process solution enters the inner reactor over an upper edge of a second partitioning cylinder, of the two partitioning cylinders, the process solution is also heated by a heater and stirred by stirring blades in the inner reactor, and the stirred process solution is removed from the inner reactor.

However, Weber discloses that the vessel treats substances in several stages (Col1, lines 15-23). Therefore, conceptually, it would have been obvious to one of ordinary skill to have provided the multiple reactor vessel of Weber with a first outer reactor, a second reactor and the inner reactor, wherein each of the reactors are separated by a partition wall similar to (11) that has perforations that allows for process fluid spill over to occur. Having employed such a vessel reactor configuration along with heating zones for each reaction zone would have been obvious to one of ordinary skill in the art for the purpose of providing means for multiple stage processes.

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***Prior Art of Record***

5. The prior art of record and not relied upon is considered pertinent to Applicant's disclosure. In addition, the following references are cited for disclosing various aspects of Applicant's invention: US 4,769,139.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Glenn Caldarola  
Supervisory Patent Examiner  
Technology Center 1700